H. L. HERVEY.

Reflector.

No. 87,671. Patented March 9, 1869.

Fig. 3.

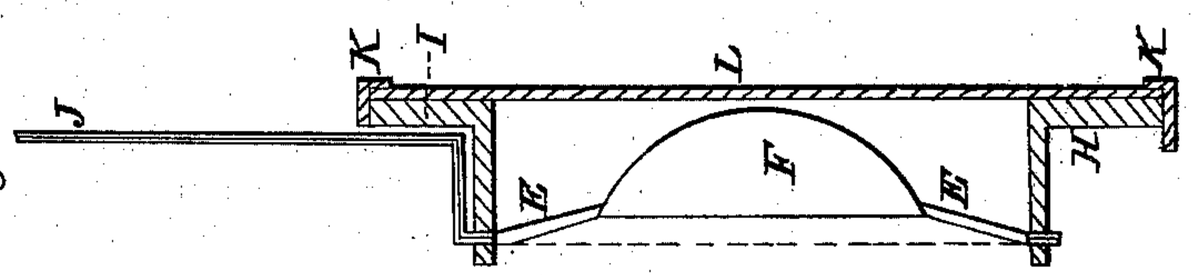


Fig. 2.

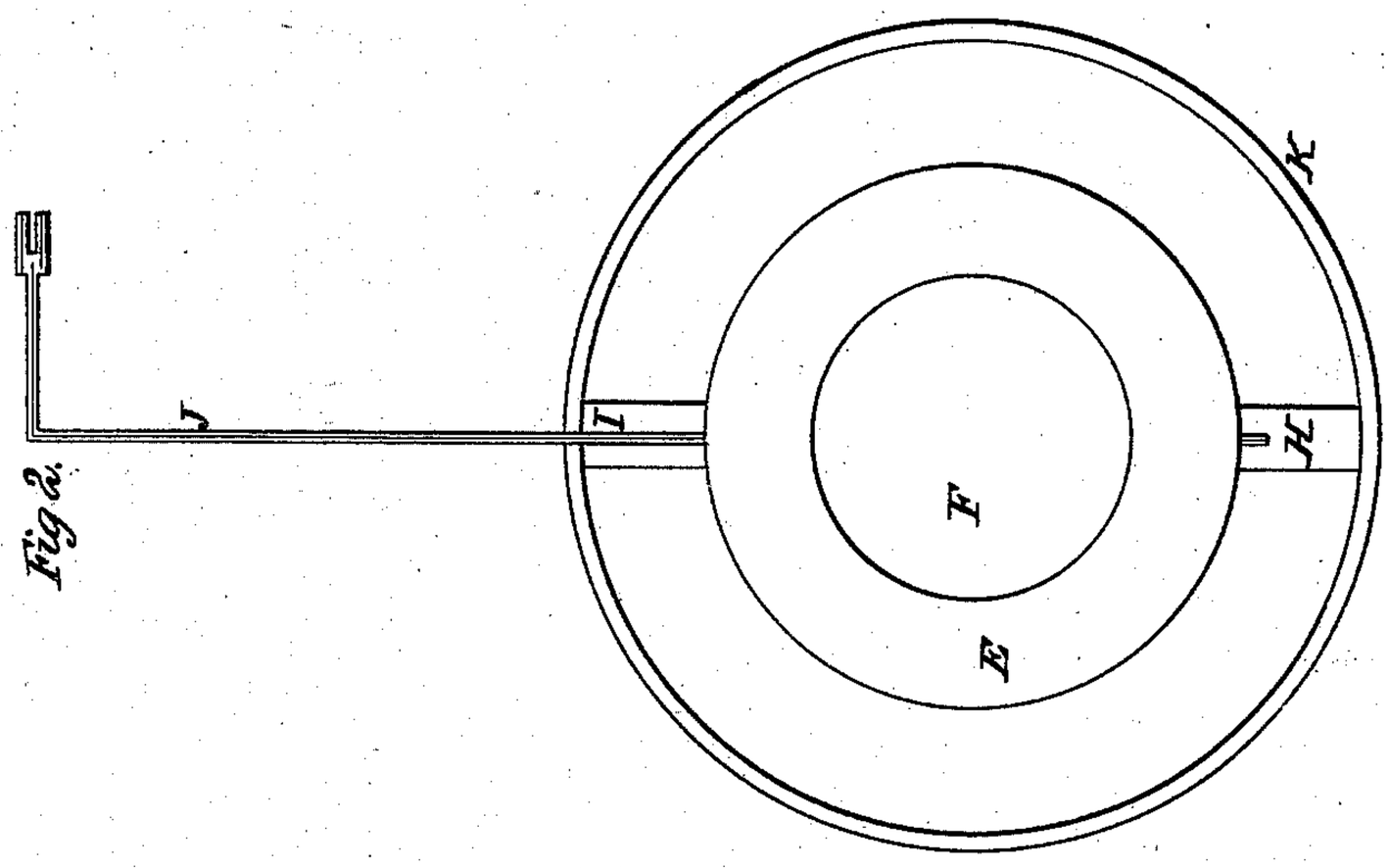
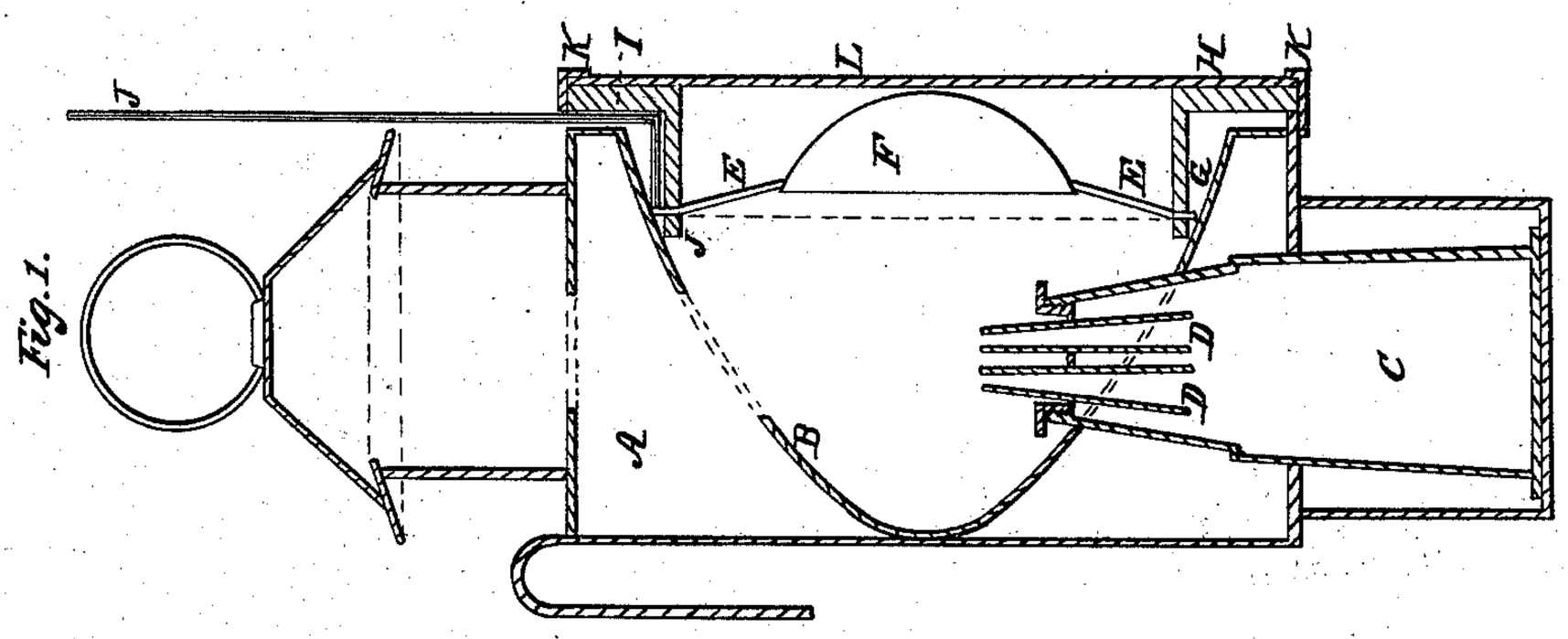


Fig. 1.



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UNITED STATES PATENT OFFICE.

HORACE L. HERVEY, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN REFLECTORS FOR HEAD-LIGHTS.

Specification forming part of Letters Patent No. **87,671**, dated March 9, 1869.

To all whom it may concern:

Be it known that I, HORACE L. HERVEY, of the city of Philadelphia, in the county of Philadelphia, and in the State of Pennsylvania, have invented a useful Improvement in Head-Lights or Lanterns; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters marked thereon.

Like letters refer to like parts in the different figures.

Figure 1 is a vertical sectional view of the head-light or lantern with its attachments. Fig. 2 is a front view of the door of the head-light or lantern, showing the bull's-eye or lens with its reflex reflector. Fig. 3 is a vertical sectional view of the head-light or lantern door, showing bull's-eye or lens and reflex reflector, also the manner of its attachment to said door.

To enable others skilled in the art to which this invention appertains to make and use my improvements, I will proceed to describe its construction and operation.

Fig. 1 is a vertical sectional view of a head-light or lantern with my improvements attached thereto.

A is the body of the head-light or lantern, and is constructed in the form herein shown, or can be made in any other known form where reflectors are used which may be found desirable, as I do not desire to confine myself to any particular form for the body of a head-light or lantern, as my invention does not consist in a head-light or lantern body, but in certain herein described attachments thereunto.

B represents the usual parabolic reflector usually found in head-lights of locomotive-engines.

C represents the lamp, with its wick-tubes, D D. This lamp can be made in any form desirable.

E E is what I call a "reflex reflector," and is a part of my invention, and can be made in any desirable form. This reflex reflector is placed in front of the light in such position as to gather the scattered rays of light and reflect them back upon the parabolic reflector B. From the reflector B these rays are reflected forward and pass through the bull's-eye or lens F, which is placed in the center or near the center of the reflex reflector E. The reflex reflector E is provided at or near its center with what is usually called a "bull's-eye" or "convex" lens, for the purpose of concentrating the rays of light so as to cause them to penetrate for a longer distance forward than they would otherwise do by the usual methods now in use for head-lights or lanterns. The reflex reflector E is shown as being provided with pivots or centers marked G and J. These pivots are for the purpose of allowing the reflex reflector to be turned so as to change the line or direction of the rays of light pouring through the bull's-eye or lens F. The pivot G, which is attached to the bottom of the reflex reflector, rests in the bracket H. Said bracket is firmly attached or secured to the bottom of the frame of the door of the head-light. Said door-frame is marked K.

The pivot J is firmly fastened or attached to the upper side of the reflex reflector E, and passes through the bracket I, then bent in the form shown in the drawings, and passes through the slot between the frame of the door and the body of the head-light or lantern, then passes upward to any desirable height, and at its top it is again bent, as is shown in Fig. 2. This is so done for the purpose of attaching a rod to reach to the cab or any other part of a locomotive-engine for the purpose of allowing the engineer the power to turn the reflex reflector so as to direct the rays of light to any desirable point in any desirable direction. The rod to connect the pivot J with any portion of the engine is not shown, as it will be easily understood without any explanation. Thus being able to turn the rays of the light to the right or left is a very important feature in the invention, as in passing around a curve the rays of light can at all times be kept shining upon the track, while in ordinary head-lights the rays of light are thrown straight forward. Therefore in passing over curves on railroads the track is more or less in darkness, in accordance with the sharpness of the curve.

The bracket I is firmly fastened to the door-frame K, the same as bracket H. I would here state I do not confine myself to fastening the said brackets J and H, which support the reflex reflector, to the door-frame, as represent-

ed, but can fasten them to the body of the head-light or lantern when found desirable so to do. I can, when desirable, attach the reflex reflector in its position, so that it will remain stationary, instead of revolving, as described.

There are various methods of attaching the reflex reflector other than has been described, which would suggest themselves to those skilled in the art to which it appertains, without changing the nature of my invention.

In the drawings I have shown the reflex reflector as being attached to the frame of the door of the head-light, for the purpose of the convenience of cleaning the insides of the reflectors.

I wish it understood that I do not confine my invention to head-lights alone, as I can apply the bull's-eye or lens and reflex reflector to station and car lights, or lights of that nature, without altering the principle or nature of it, when found desirable so to do.

The reflex reflector E does not fill up the whole of the mouth or front of the parabolic reflector, but leaves a narrow margin around its circumference and the parabolic reflector, so that a portion of the rays of light will be able to pass between the two reflectors, so as to give light around the front of the engine or place where it is used. K K represents the door-frame to the head-light. L represents the glass plate usually found in such doors.

Fig. 2 shows a front view of the door of a head-light or lantern with the reflex reflector, bull's-eye lens, and other attachments. K is the door-frame for holding the ordinary glass face. E is the reflex reflector. F is the bull's-eye or lens. H and I are the brackets attached to the door-frame K for the purpose of supporting the reflex reflector E and its bull's-eye or lens. J is the rod acting as the upper pivot for the reflex reflector E. It is also shown in this figure with its upper end bent at right angles for the purpose of acting as a lever for turning the reflex reflector to any desirable angle.

Fig. 3 is a vertical sectional view of the head-light or lantern door with the reflex reflector and its appendages attached. K is the door-frame. E is the reflex reflector; J and G, pivots for the same; F, bull's-eye or lens. H and I are the brackets attached to the door-frame K for supporting the reflex reflector. The rod J also acts as a governor to the reflex reflector, so that said reflector can be turned when desirable so to do.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The bull's-eye or lens, in combination with the reflex reflector, when used for head-lights and other similar lights, substantially as described, and for the purposes set forth.

2. The reflex reflector E, pivoted or stationary, when used, in combination with reflector B in head-lights, in the manner herein described, and operating as and for the purposes set forth.

In testimony that I claim the above-described improvement in head-lights or lanterns I have hereunto signed my name this 2d day of February, 1869.

HORACE L. HERVEY.

Witnesses:
CHAS. MINK,
ALEX. MCDONALD.